PATENT

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicants: HIRANO, Mitsuhiro

Appl No.: 08/813,200 Group: 2814

Filed: March, 7, 1997 Examiner: DIETRICH, M

For: SUBSTRATE PROCESSING APPARATUS

Date: February 22, 1999

Docket No.: 2342-107P

LARGE ENTITY TRANSMITTAL FORM

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Transmitted herewith is an amendment in the above-identified application.

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TOTAL	26	-	26	=	0	$ 18	$0.00
INDEPENDENT	4	-	4	=	0	$ 78	$0.00
0 FIRST PRESENTATION OF A MULTIPLE CLAIM						$260	$0.00
						TOTAL	$0.00

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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By _____
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Attachment
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PATENT
2342-107P

IN THE U.S. PATENT AND TRADEMARK OFFICE

APPLICANT: HIRANO, Mitsuhiro

APPLICATION NO.: 08/813,200 GROUP: 2814

FILED: March 7, 1997 EXAMINER: DIETRICH, M

FOR: SUBSTRATE PROCESSING APPARATUS

REPLY TO RESTRICTION REQUIREMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

February 22, 1999

Sir:

In reply to the restriction requirement dated January 22, 1999, the following amendments and remarks are respectfully submitted.

IN THE CLAIMS:

Please amend the following claims as follows:

1. (Amended) A substrate processing apparatus, comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply [means] for supplying gas into said load lock chamber;

a chamber exhaust [means] for exhausting said load lock chamber;

a moving mechanism provided in said load lock chamber and capable of moving said substrate;

a local exhaust [means] capable of locally exhausting a dust generating portion of said moving mechanism; and

a flow rate regulator [controlling device provided] in at least one of said gas supply [means], said chamber exhaust [means] and said local exhaust [means].

2. (Amended) A substrate processing apparatus as recited in claim 1, further comprising: a controller; [control device] and

a pressure detector [detecting device] for detecting pressure in said load lock chamber, wherein

said flow rate regulator [control device] is provided in at least said gas supply [means], and

said [control device] controller is capable of controlling said flow rate detector [detecting device].

A1 cont.

3. (Amended) A substrate processing apparatus as recited in claim 1, wherein said flow rate regulator [control device] is provided in at least said local exhaust [means].

4. (Amended) A substrate processing apparatus as recited in claim 1, wherein said flow rate regulator [control device] is provided in at least said chamber exhaust [means].

5. (Amended) A substrate processing apparatus as recited in claim 4, wherein said chamber exhaust [means] includes an atmospheric vent line, pressure at one end of said atmospheric pressure vent line is substantially

equal to the atmospheric pressure, and the other end of said atmospheric pressure vent line is communicated with the inside of said load lock chamber, and

said flow rate regulator [control device] is disposed in at least said atmospheric pressure vent line.

6. (Amended) A substrate processing apparatus as recited in claim 3, further comprising: a [control device] controller; and

a pressure detector [detecting device] for detecting pressure in said load lock chamber, wherein

said [control device] controller is capable of controlling said flow rate regulator [control device] in accordance with a signal from said pressure detector [detecting device].

7. (Amended) A substrate processing apparatus as recited in claim 1, wherein said chamber exhaust [means] includes an atmospheric pressure vent line and a vacuum exhaust line which is to be connected to a vacuum pump,

pressure at one end of said atmospheric pressure vent line is substantially equal to the atmospheric pressure and the other end is communicated with said load lock chamber, and

said local exhaust [means] is connected to said vacuum exhaust line.

8. (Amended) A substrate processing apparatus as recited in claim 1, wherein said chamber exhaust [means] includes an atmospheric pressure vent line and a vacuum exhaust line which is to be connected to a vacuum pump,

pressure at one end of said atmospheric pressure vent line is substantially equal to the atmospheric pressure and the other end is communicated with said load lock chamber, and

said substrate processing apparatus further includes a first valve disposed at an intermediate portion of said vacuum exhaust line, a second valve disposed at an intermediate portion of said atmospheric pressure vent line and a controller [control device], and

said first and second valves are [is] controlled by said [control device] controller such that during [the] movement of said substrate by [utilizing] said moving mechanism, said first valve is closed and said second valve is opened.

A1 cont.

9. (Amended) A substrate processing apparatus as recited in claim 8, wherein said local exhaust [means] is connected to said vacuum exhaust line at the downstream side of said first valve.

10. A substrate processing apparatus as recited in claim 8, further comprising a pressure detector [detecting device] for detecting pressure in said load lock chamber, wherein

said gas supply [means] and said local exhaust [means] are respectively provided with said flow rate regulator [control devices],

during movement of said substrate by [utilizing] said moving mechanism, an amount of gas supplied by said gas supply [means] into said load lock chamber is controlled[,] by said flow rate regulator [control device,] to be greater than an exhaust amount from said local exhaust [means], and the gas supplied by said gas supply [means] is exhausted by said local exhaust [means] and said chamber exhaust [means].

11. (Amended) A substrate processing apparatus as recited in claim 8, further comprising a pressure detector [detecting device] for detecting pressure in said load lock chamber, wherein

during movement of said substrate by [utilizing] said moving mechanism, said controller [control device] controls said flow rate regulator [control device] in accordance with a signal from said pressure [detecting device] detector [so as] to keep the inside of said load lock chamber at a higher pressure level than the atmospheric pressure.

12. (Amended) A substrate processing apparatus, comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply [means] for supplying gas into said load lock chamber;

a chamber exhaust [means] for exhausting said load lock chamber;

a moving mechanism provided within said load lock chamber and capable of moving said substrate;

a local exhaust [means] capable of locally exhausting a dust generating portion of said moving mechanism; and

a flow rate detector [measuring device] for measuring an exhaust amount of said local exhaust [means].

13. (Amended) A substrate processing apparatus as recited in claim 12, having [wherein] a plurality of said local exhausts [means is provided in plural], and wherein [said] a flow rate detector [measuring devices are] is respectively provided in each of said plurality of local exhausts [means].

A1 cont.

14. (Amended) A substrate processing apparatus as recited in claim 12, wherein said local exhaust [means] comprises a flexible exhaust pipe.

15. (Amended) A substrate processing apparatus, comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply [means] for supplying gas into said load lock chamber;

a chamber exhaust [means] for exhasting said load lock chamber;

a moving mechanism provided within said load lock chamber and capable of moving said substrate;

a first vacuum exhaust line [to be] connected to a vacuum pump;

a second vacuum exhaust line which is communicated with said substrate processing chamber and said first vacuum exhaust line;

a local exhaust [means] which is capable of locally exhausting a dust generating portion of said moving mechanism, and is communicated with said first vacuum exhaust line;

a valve connected to an intermediate portion of said local exhaust [means]; and

a valve controller [control means] capable of controlling said valve;

wherein during processing of said substrate in said substrate processing chamber, said valve controller [control means] controls said valve to be closed.

A1 cont.

16. (Amended) A substrate processing apparatus as recited in claim 15, further comprising a third vacuum exhaust line which is communicated with said load lock chamber and said first exhaust line, and a second valve provided at an intermediate portion of said third vacuum exhaust line, wherein

SUB D3

said valve controller [control means] is also capable of controlling said second valve, and

during processing of said substrate in said substrate processing chamber, said valve controller [control means] controls said second valve to be closed.

SUB B5

17. (Amended) A substrate processing apparatus as recited in claim 1, wherein said gas supply [means] is communicated with said load lock chamber at the side of region in which said substrate moves, and said chamber exhaust [means] is communicated with said load lock chamber at the side of region in which said moving mechanism is provided.

18. (Amended) A substrate processing apparatus as recited in claim 17, further comprising a partition plate provided in said load lock chamber for partitioning said load lock chamber into the region in which said substrate is moved and the region in which said moving mechanism is positioned [provided], and a slit provided in said partition plate, wherein

gas supplied[,] by said gas supply [means,] into the region in which said substrate is moved[,] is made to [be flowed] flow into the region in which said moving mechanism is positioned [provided].

REMARKS

In the Office Action dated January 22, 1999, the Examiner requires the Applicant to elect one of the following patentably distinct groups of invention:

Group I. Including claims 1-19, drawn to a method for fabrication of a semiconductor device, classified in class 438, subclass 909.[1]

Group II. Including claims 20-26, drawn to an apparatus classified in class 118, subclass 900.[2]

Applicant hereby elects the Group I. invention, including claims 1-19. Applicant reserves the right to file a divisional application on the non-elected group of invention, including claim 20-26.

Applicant has amended the elected claims so that these claims do not include "means plus function" limitations which would invoke 35 U.S.C. § 112,

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Although the Examiner classifies claims 1-19 as "method" claims, Applicant note that these claims are clearly directed to an "apparatus".

[2] While claims 20-26 are classified by the Examiner as directed to an "apparatus", Applicant note that these claims are in fact directed to a "method".

sixth paragraph and respectfully requests favorable consideration of these elected claim.

CONCLUSION

If there are any question regarding this application, the Examiner is invited to contact D. Richard Anderson (Reg. No. 40,439) at the number given below in the Washington D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17; particularly, extension of time fees.

Respectfully submitted,

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